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EXAMINER	
VO, HUYEN X	

ART UNIT	PAPER NUMBER
2655	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/751,613	SCHMID ET AL.	
	Examiner	Art Unit	
	Huyen Vo	2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 August 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 December 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-28 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-5 and 7-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hunt et al. (US Patent No. 6374226) in view of Martin (US Patent No. 5642519).

4. Regarding claim 1, Hunt et al. disclose a method of managing grammars used in a speech recognition system, comprising:

loading a first grammar in a grammar engine (*col. 5, line 61 to, col. 6, line 16 or referring to the operation* of figure 3);

implementing a speech recognition interface (col. 10, ln. 32-42)

communicating words in the first grammar to the SR engine through the SR interface (referring to Grammar_A in the Speech Recognizer 78 in figure 3);

notifying the SR engine, through the SR interface, of rules in the first grammar (col. 3, ln. 54-65); and

representing the rules in the first grammar to the SR engine through the SR interface (col. 3, ln. 54-65 or referring to Grammar_A in Speech Recognizer 78 of figure 3, Grammar_A contains more than one rule).

Hunt et al. fail to specifically disclose that the grammar engine is a CFG engine and a method for implementing an engine-independent SR interface between the CFG engine and a speech recognition (SR) engine. However, Martin teaches that the grammar engine is a CFG engine (col. 6, lines 1-9) and a method for implementing an engine-independent SR interface between the CFG engine and a speech recognition (SR) engine (element 350 in figure 4 is the engine-independent SR interface).

Since Hunt et al. and Martin are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hunt et al. by incorporating the teaching of Martin in order to generate and provide appropriate grammars to the speech recognizer to enhance speech recognition accuracy.

5. Regarding claim 2, Hunt et al. further disclose a method for receiving rule queries from the SR engine through the SR interface (col. 5, ln. 44-54 or col. 8, ln. 50-56) and providing rule information to the SR engine, through the SR interface, the rule information enabling the SR engine to construct an internal representation of the first grammar (col. 6, ln. 17-56).

6. Regarding claim 3, Hunt et al. further disclose that the method for providing rule information includes providing a rule identifier (col. 4, ln. 51 to col. 5, ln. 7), a rule level indicator indicating a level of a corresponding rule (col. 12, ln. 27-38), state information representing states in the corresponding rule and transition information representing transitions in the corresponding rule (col. 13, ln. 1 to col. 14, ln. 50).

7. Regarding claim 4, Hunt et al. further disclose a method for loading a second grammar in a grammar engine (72a of figure 3) and representing the first and second grammars to the SR engine, through the SR interface, as a single grammar (col. 2, ln. 12-23). With the modification of Hunt et al. as discussed in claim 1 above, the grammar engine is a CFG engine. Thus, all method steps applied to the grammar engine would obviously apply to CFG engine.

8. Regarding claim 5, Hunt et al. further disclose a method for representing the first and second grammars to the SR engine comprises: communicating words in the second grammar to the SR engine through the SR interface (referring to Grammar_B in the Speech Recognizer 78 in figure 3), notifying the SR engine, through the interface, of rules in the second grammar (col. 3, ln. 54-65 and referring to Grammar_B in the Speech Recognizer 78 in figure 3), and representing the rules in the second grammar to the SR engine through the interface (col. 3, ln. 54-65 or referring to Grammar_B in Speech Recognizer 78 of figure 3, Grammar_B contains more than one rule).

9. Regarding claim 7, Hunt et al. further disclose a method for implementing an application-independent application interface between the grammar engine and an application (figure 1, element 15 can be considered an application-independent application interface). With the modification of Hunt et al. as discussed in claim 1 above, the grammar engine is a CFG engine. Thus, all method steps applied to the grammar engine would obviously apply to CFG engine.

10. Regarding claim 8, Hunt et al. further disclose a method for receiving an activation input from the application, through the application interface, indicating which of the rules are to be active (col. 3, ln. 25-40) and providing an activation indication from the grammar engine, through the interface, to the SR engine to indicate which of the rules are active, based on the activation input (col. 3, ln. 40 to col. 4, ln. 13). With the modification of Hunt et al. as discussed in claim 1 above, the grammar engine is a CFG engine. Thus, all method steps applied to the grammar engine would obviously apply to CFG engine.

11. Regarding claim 9, Hunt et al. further disclose a method for receiving from the application, through the application interface, a change indication, indicating a change to the first grammar (col. 7, ln. 63 to col. 8, ln. 7), determining, in the grammar engine, whether content of a rule in the first grammar is to be changed, based on the change indication (col. 5, ln. 40-54), and if so, providing an invalidation indication to the SR

engine, through the SR interface, indicating the first grammar is to be invalidated (col. 5, ln. 40-54). With the modification of Hunt et al. as discussed in claim 1 above, the grammar engine is a CFG engine. Thus, all method steps applied to the grammar engine would obviously apply to CFG engine.

12. Regarding claim 10, Hunt et al. further disclose a method for receiving queries from the SR engine through the SR interface (col. 5, ln. 40-54) and in response to the queries, providing word and rule information to the SR engine through the SR interface, the word and rule information enabling the SR engine to construct an internal representation of the first grammar with the change (col. 3, ln. 54-65 or referring to Grammar_A in Speech Recognizer 78 of figure 3, Grammar_A contains more than one rule).

13. Regarding claim 11, Hunt et al. further disclose that if the content of a rule in the first grammar is not to be changed, but a word or rule is to be added, providing an indication to the SR engine through the SR interface to add the word or rule to the SR engine (col. 14, ln. 1 to col. 15, ln. 67).

14. Regarding claim 12, Hunt et al. further disclose a method for determining in the grammar engine whether the first grammar refers to any additional grammars, and if so, loading the additional grammars in the grammar engine (col. 6, ln. 58 to col. 7, ln. 20). With the modification of Hunt et al. as discussed in claim 1 above, the grammar engine

is a CFG engine. Thus, all method steps applied to the grammar engine would obviously apply to CFG engine.

15. Regarding claim 13, Hunt et al. further disclose a method for representing the first and additional grammars to the SR engine, through the SR interface, as a single grammar (col. 6, ln. 58 to col. 7, ln. 20 and col. 2, ln. 12-22).

16. Regarding claim 14, Hunt et al. further disclose a method for communicating words in the additional grammars to the SR engine through the SR interface (col. 6, ln. 58 to col. 7, ln. 20, it is inherent that words are passed along with grammar rules to speech recognizer), notifying the SR engine, through the SR interface, of rules in the additional grammars (col. 6, ln. 58 to col. 7, ln. 20, that is transferring rules to SR), and representing the rules in the additional grammars to the SR engine through the SR interface (col. 6, ln. 58 to col. 7, ln. 20).

17. Regarding claim 15, Hunt et al. further disclose a method for providing a word handle to the SR engine identifying each word (col. 19, ln. 11-16).

18. Regarding claim 16, Hunt et al. disclose a method of parsing a speech recognition result from a speech recognition (SR) engine, comprising: receiving the result from the SR engine at a grammar engine having an interface component exposing methods to implement an engine-independent interface to the SR engine and

an application-independent interface to an application (col. 4, ln. 14-50, or referring to figure 2), parsing the result at the grammar engine to obtain a parsed result (col. 6, ln. 17-27), and providing the parsed result to the application from the grammar engine (col. 6, ln. 45-56). With the modification of Hunt et al. as discussed in claim 1 above, the grammar engine is a CFG engine. Thus, all method steps applied to the grammar engine would obviously apply to CFG engine.

19. Regarding claim 17, Hunt et al. further disclose a method for receiving a rule identifier identifying a rule in a grammar that spawned the result (col. 6, ln. 28-56) and receiving a plurality of transition identifiers identifying transitions through the rule that spawned the result (col. 13, ln. 61 to col. 14, ln. 59). With the modification of Hunt et al. as discussed in claim 1 above, the grammar engine is a CFG engine. Thus, all method steps applied to the grammar engine would obviously apply to CFG engine.

20. Regarding claim 18, Hunt et al. further disclose a method for constructing an indication of a parse tree based on the rule identifier and the plurality of transition identifiers (col. 6, ln. 30-44 and col. 13, ln. 61 to col. 14, ln. 59) and providing the indication of the parse tree from the grammar engine to the application through the application-independent interface (col. 6, ln. 45-56). With the modification of Hunt et al. as discussed in claim 1 above, the grammar engine is a CFG engine. Thus, all method steps applied to the grammar engine would obviously apply to CFG engine.

21. Regarding claim 19, Hunt et al. further disclose a middleware component between an application and a speech recognition (SR) engine, comprising: a grammar engine configured to receive a first grammar from the application and represent the first grammar to the SR engine (figures 1 and 3); and an interface component coupled to the grammar engine, exposing methods to provide an application-independent interface to the application and an engine-independent interface to the SR engine (col. 4, ln. 14-50, or referring to figures 1-3). With the modification of Hunt et al. as discussed in claim 1 above, the grammar engine is a CFG engine. Thus, all method steps applied to the grammar engine would obviously apply to CFG engine.

22. Regarding claim 20, Hunt et al. further disclose that the grammar engine is configured to notify the SR engine, through the interface component, of words in the first grammar (col. 3, ln. 54-65). With the modification of Hunt et al. as discussed in claim 1 above, the grammar engine is a CFG engine. Thus, all method steps applied to the grammar engine would obviously apply to CFG engine.

23. Regarding claim 21, Hunt et al. further disclose that the grammar engine is configured to receive a plurality of different grammars (grammar_A and grammar_B in figure 3) and represent the plurality of different grammars to the SR engine, through the interface component, as a single grammar (col. 2, ln. 12-23 and col. 3, ln. 54-65, or referring to figure 3). With the modification of Hunt et al. as discussed in claim 1 above,

the grammar engine is a CFG engine. Thus, all method steps applied to the grammar engine would obviously apply to CFG engine.

24. Regarding claim 22, Hunt et al. further disclose that the grammar engine is configured to determine whether the first grammar refers to any additional grammars (col. 6, ln. 58 to col. 7, ln. 20). With the modification of Hunt et al. as discussed in claim 1 above, the grammar engine is a CFG engine. Thus, all method steps applied to the grammar engine would obviously apply to CFG engine.

25. Regarding claim 23, Hunt et al. further disclose that the grammar engine is configured to load the additional grammars referred to by the first grammar and to represent the first grammar and the additional grammars to the SR engine, through the interface component, as a single grammar (col. 6, ln. 58 to col. 7, ln. 20 or col. 2, ln. 12-22). With the modification of Hunt et al. as discussed in claim 1 above, the grammar engine is a CFG engine. Thus, all method steps applied to the grammar engine would obviously apply to CFG engine.

26. Regarding claim 24, Hunt et al. further disclose that the grammar engine is configured to represent the first and additional grammars as a single grammar by providing substantially only word, rule and transition information indicative of words, rules and transitions in the first and additional grammars, regardless of a grammar containing the words, rules and transitions (col. 6, ln. 58 to col. 7, ln. 20 and col. 13, ln.

1-34). With the modification of Hunt et al. as discussed in claim 1 above, the grammar engine is a CFG engine. Thus, all method steps applied to the grammar engine would obviously apply to CFG engine.

27. Regarding claim 25, Hunt et al. further disclose that the grammar engine is configured to receive change information indicative of changes to the first grammar (col. 7, ln. 63 to col. 8, ln. 7) and to provide an invalidation output to the SR engine, through the interface, invalidating the first grammar in the SR engine (col. 5, ln. 40-54). With the modification of Hunt et al. as discussed in claim 1 above, the grammar engine is a CFG engine. Thus, all method steps applied to the grammar engine would obviously apply to CFG engine.

28. Regarding claim 26, Hunt et al. further disclose that the grammar engine is configured to receive a plurality of queries from the SR engine, through the interface (col. 5, ln. 40-54), and to represent the first grammar, with the changes, to the SR engine in response to the queries (col. 3, ln. 54-65 or referring to Grammar_A in Speech Recognizer 78 of figure 3, Grammar_A contains more than one rule). With the modification of Hunt et al. as discussed in claim 1 above, the grammar engine is a CFG engine. Thus, all method steps applied to the grammar engine would obviously apply to CFG engine.

29. Regarding claim 27, Hunt et al. disclose a computer readable medium including instructions which, when implemented by a computer, cause the computer to perform the method of managing grammars used in a speech recognition system (col. 19, ln. 56-61), comprising:

loading a first grammar in a grammar engine (72a of figure 3);

implementing a speech recognition interface (col. 10, ln. 32-42)

communicating words in the first grammar to the SR engine through the SR interface (referring to Grammar_A in the Speech Recognizer 78 in figure 3);

notifying the SR engine, through the SR interface, of rules in the first grammar (col. 3, ln. 54-65); and

representing the rules in the first grammar to the SR engine through the SR interface (col. 3, ln. 54-65 or referring to Grammar_A in Speech Recognizer 78 of figure 3, Grammar_A contains more than one rule).

Hunt et al. fail to specifically disclose that the grammar engine is a CFG engine and a method for implementing an engine-independent SR interface between the CFG engine and a speech recognition (SR) engine. However, Martin teaches that the grammar engine is a CFG engine (col. 6, lines 1-9) and a method for implementing an engine-independent SR interface between the CFG engine and a speech recognition (SR) engine (element 350 in figure 4 is the engine-independent SR interface).

Since Hunt et al. and Martin are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hunt et al. by incorporating the teaching of

Martin in order to generate and provide appropriate grammars to the speech recognizer to enhance speech recognition accuracy.

30. Regarding claim 28, Hunt et al. further disclose a computer readable medium including instructions which, when implemented by a computer, cause the computer to perform the method of parsing a speech recognition result from a speech recognition (SR) engine (col. 19, ln. 56-61), comprising: receiving the result from the SR engine at a grammar engine having an interface component exposing methods to implement an engine-independent interface to the SR engine and an application-independent interface to an application (col. 4, ln. 14-50, or referring to figure 2), parsing the result at the grammar engine to obtain a parsed result (col. 6, ln. 17-27), and providing the parsed result to the application from the grammar engine (col. 6, ln. 45-56).

Hunt et al. fail to specifically disclose that the grammar engine is a CFG engine and a method for implementing an engine-independent SR interface between the CFG engine and a speech recognition (SR) engine. However, Martin teaches that the grammar engine is a CFG engine (col. 6, lines 1-9) and a method for implementing an engine-independent SR interface between the CFG engine and a speech recognition (SR) engine (element 350 in figure 4 is the engine-independent SR interface).

Since Hunt et al. and Martin are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hunt et al. by incorporating the teaching of

Martin in order to generate and provide appropriate grammars to the speech recognizer to enhance speech recognition accuracy.

31. Regarding claim 29, Hunt et al. disclose a speech processing component, comprising: a layer configured to implement an application interface for communication with an application (*col. 3, lines 28-40*) and a speech recognition (SR) interface for communication with a SR engine (*element 31 in figure 1, microphone interface*), the layer including a grammar engine configured to represent a plurality of grammars to the SR engine, through the SR interface, as a single grammar (*col. 3, lines 54-67, grammars are delivered to the SR engine*). Hunt et al. fail to specifically disclose that the grammar engine is a CFG engine. However, Martin teaches the use of CFG in speech recognition engine (col. 6, lines 1-9).

Since Hunt et al. and Martin are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hunt et al. by incorporating the teaching of Martin in order to generate and provide appropriate grammars to the speech recognizer to enhance speech recognition accuracy.

32. Regarding claim 30, Martin further teach that the speech processing system of claim 29 wherein the CFG engine is further configured to load the plurality of grammars from one or more applications through the application interface (*figure 3*).

33. Regarding claim 31, Hunt et al. disclose a method of managing grammars in a speech processing system, comprising: providing a program component configured to communicate with an application through an application interface and with a speech recognition (SR) engine through an SR interface (*figure 1*); and representing to the SR engine, with the grammar engine through the SR interface, a plurality of grammars as a single grammar (*figure 3*). Hunt et al. fail to specifically disclose that the program component including a context-free grammar (CFG) engine. However, Martin teaches the use of CFG in speech recognition engine (col. 6, lines 1-9).

Since Hunt et al. and Martin are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hunt et al. by incorporating the teaching of Martin in order to generate and provide appropriate grammars to the speech recognizer to enhance speech recognition accuracy.

34. Regarding claim 32, Hunt et al. further disclose the method of claim and further comprising: loading the plurality of grammars into the CFG engine through the application interface (*col. 5, line 61 to, col. 6, line 16*).

35. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hunt et al. (US Patent No. 6374226) in view of Martin (US Patent No. 5642519), and further in view of Galler et al. (US Patent No. 5991720).

36. Regarding claim 6, the modified Hunt et al. fail to specifically disclose a method for communicating only new words in the second grammar, not in the first grammar, to the SR engine through the SR interface. However, Galler et al. teach a method for analyzing input speech by using two different grammars (col. 2, ln. 40-56, two different grammars indicates that words in the first grammar is different than word in the second grammar).

Since the modified Hunt et al. and Galler et al. are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Hunt et al. by incorporating the teaching of Galler et al. in order to avoid repetitive processing of the same words to reduce processing time for the system.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huyen Vo whose telephone number is 703-305-8665. The examiner can normally be reached on M-F, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To can be reached on 703-305-4827. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Examiner Huyen X. Vo

March 11, 2004

SUSAN MCFADDEN
PRIMARY EXAMINER